Edd Clark & Associates, Inc.
Environmental Consultants

December 16, 2005
Job No.: 0461,001.03

Mr. Bill Rich
P.O. Box 251
Sausalito, CA 94966

Groundwater Monitoring Report - August 2005 Event
5085 Redwood Drive
Rohnert Park, California

Dear Mr. Rich:

Please accept this as Edd Clark & Associates, Inc's. (EC&A's) report on the August 17, 2005 groundwater monitoring event at 5085 Redwood Drive (site) in Rohnert Park, California (Figure 1). Groundwater monitoring is being conducted at the request of the County of Sonoma Department of Health Services (CSDHS) because of a release of fuel hydrocarbons (FHCs) to the subsurface from underground storage tanks (USTs) located at the site. Work performed for this monitoring event includes measuring depth to water (DTW) in and collecting groundwater samples for chemical analysis from monitoring wells MW-1, MW-2, MW-3 and MW-4 (Figure 2); calculating groundwater-flow direction and gradient; evaluating the results of the analyses and calculations; and preparing this report. A copy of this report will be submitted to the CSDHS for their review.

Water Level Measurements
On August 17, 2005, EC&A personnel measured DTW in MW-1 through MW-4. DTW below the top of well casing (TOC) was measured to the nearest 0.01 foot (ft) with a water-level meter. The meter was cleaned and rinsed prior to taking measurements in each well. The DTW was recorded after the well caps were removed and groundwater in each well was allowed to equilibrate for at least 15 minutes. The DTW in wells MW-1 through MW-4 ranged from 6.28 ft to 6.54 ft; the calculated groundwater-flow direction and gradient were N71°W and 0.005 ft/ft, respectively (Table 1 and Figure 2).

Groundwater Field Logs containing DTW measurements are in Appendix A. DTW data will be electronically submitted to the State GeoTracker Internet Database.

Groundwater Sampling Procedures
On August 17, 2005, EC&A personnel collected groundwater samples from MW-1 through MW-4. Prior to collecting samples, the wells were purged with a submersible pump. Purged water was checked for the presence of free-floating product. Free-floating product was not present in the purged water. A minimum of three well-casing volumes of groundwater were removed from each monitoring well. Groundwater pH, temperature, and electric conductivity were measured during purging of each well at intervals of approximately one well-casing volume. Groundwater samples were collected from each well after groundwater parameters stabilized and the water level in each

well returned to a minimum of 80% of the initially recorded water level. Purge volumes and groundwater-quality parameters are recorded on the Field Logs in Appendix A.

Groundwater samples were collected in new single-sample, disposable bailers fitted with disposable bottom-emptying devices to minimize water degassing. The samples were transferred from the bailers to properly labeled, laboratory-supplied sterile sample containers, logged on a chain-of-custody form, placed on ice and transported to McCampbell Analytical, Inc. (MAI) for chemical analysis. MAI is a State-certified laboratory in Pacheco, California.

Decontamination Procedures
Sampling equipment was cleaned onsite with a low phosphorous soap and water solution and double rinsed with tap water. Decontamination water and monitoring well purge water were placed in a properly labeled, DOT 17H 55-gallon drum for temporary, onsite storage.

Groundwater Sample Analyses and Analytical Results
Groundwater samples collected from MW-1 through MW-4 were analyzed for total petroleum hydrocarbons (TPH) as gasoline (g), TPH as diesel (d) and benzene, toluene, ethylbenzene and xylenes (BTEX) by Analytical Methods SW8015Cm/8015C/8021B, and for methyl tert-butyl ether (MTBE) and other gasoline oxygenates and the lead scavengers 1,2-dibromoethane (EDB) and 1,2-dichloroethane (1,2-DCA) by Analytical Method SW8260B.

The only analyte detected in the monitoring wells was MTBE. Concentrations of MTBE in MW-1, MW-2, MW-3 and MW-4 were 780 micrograms per liter (µg/l), 390 µg/l, 5.4 µg/l and 890 µg/l, respectively.

The results of analyses of groundwater samples collected from the monitoring wells are presented in Table 2. A complete copy of the analytical laboratory report is in Appendix B. The results of the analyses of the samples will be electronically submitted to the State GeoTracker Internet Database.

Conclusions
Diesel (TPHd) has not been detected in groundwater collected from the monitoring wells since sampling began in November 2004. For the February 2005 groundwater sampling event, TPHg (in MW-1 and MW-2); BTEX components (in all four wells); and TBA (in MW-2 and MW-4) were detected for the first time. None of these analytes were detected for the May or August 2005 events. MTBE has been detected in MW-1, MW-2 and MW-4 for all four sampling events conducted to date. In MW-3, low concentrations of MTBE were detected in November 2004 and February and August 2005; MTBE was not detected in May 2005.

The maximum TPHg and benzene concentrations reported to date were detected in February 2005 at 400 µg/l (MW-2) and 19 µg/l (MW-2), respectively. The February 2005 TPHg and benzene detections in MW-2 appear to be anomalous because MW-2 is further from the fuel dispensers and UST field than MW-1 and MW-4. The maximum MTBE concentrations reported to date for MW-1 through MW-4 are 1200 µg/l (February 2005), 390 µg/l (August 2005), 6.1 µg/l (November 2004)

and 1200 µg/l (February 2005), respectively. Between May and August of 2005, MTBE concentrations decreased in MW-1 and increased in MW-2 through MW-4. Overall, MTBE concentrations continue to fluctuate in all four wells.

Reportedly, the regional down-gradient direction is to the southwest toward the Laguna de Santa Rosa. However, heavy extraction from municipal groundwater wells within the City of Rohnert Park has perturbed the local flow direction. To date, the groundwater flow direction has been to the northwest (November 2004 and August 2005), southwest (May 2005) and southeast (February 2005).

Recommendations

EC&A recommends continued quarterly groundwater monitoring in order to evaluate groundwater quality and flow direction in the vicinity of the UST field and fuel dispensers during changes in seasonal water-table levels.

During each sampling event, water levels should be measured in all wells and groundwater samples should be collected from each well and analyzed by Analytical Methods SW8015Cm/8021B for TPHg and BTEX, and by Analytical Method SW8260B for MTBE, other gasoline oxygenates and lead scavengers EDB and 1,2-DCA. Analysis for TPHd should be discontinued as it has not been detected in any of the wells for the four sampling events conducted to date.

Schedule

A groundwater sample event was conducted at the site on November 4, 2005. A report of this event will be completed by January 4, 2006.

Limitations

The conclusions presented in this report are professional opinions based on the information presented herein, which includes data generated by others. Whereas EC&A does not guarantee the accuracy of data supplied by third parties, we reserve the right to use this data in formulating our professional opinions. This report is intended only for the indicated purpose and project site. Conclusions and recommendations presented herein apply to site conditions existing at the time of our study. Changes in the conditions of the site property can occur with time because of natural processes or the works of man on the site or adjacent properties. In addition, changes in applicable standards can also occur as the result of legislation or from the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

Thank you for allowing EC&A to provide environmental services for you. Please call John Calomiris, project manager, if you have any questions.

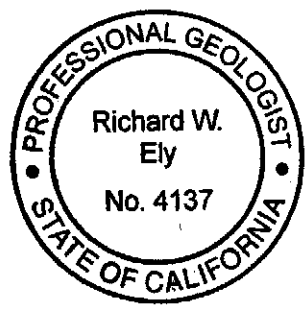
Sincerely,

Etta Jon VandenBosch

Etta Jon VandenBosch
Environmental Scientist

Richard Ely

Richard Ely, PG #4137
Senior Geologist



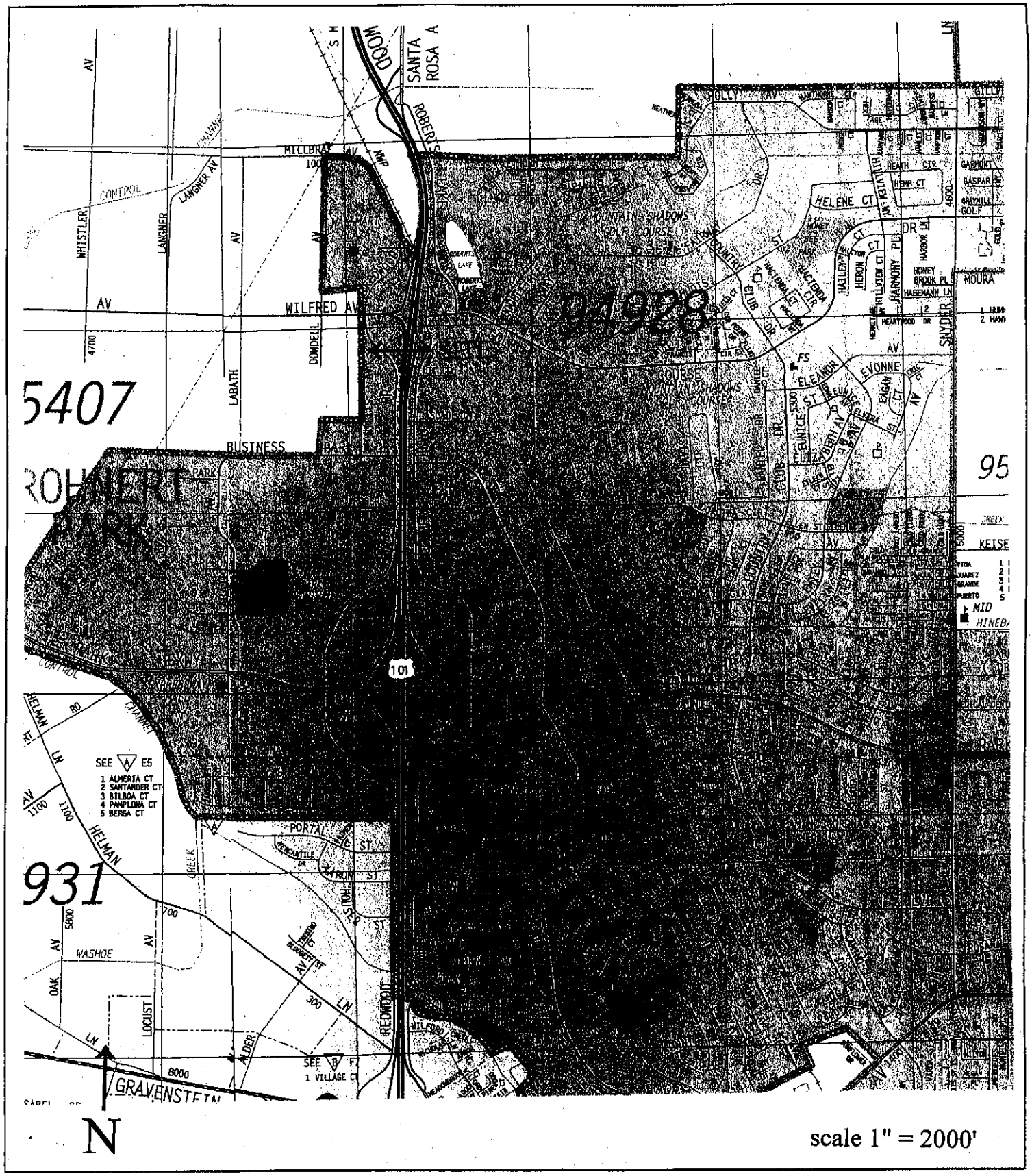
Attachments: Figure 1 - Site Location Map
Figure 2 - Groundwater Elevation Map, 17 August 2005
Figure 3 - MTBE in Groundwater Isoconcentration Map, 17 August 2005

Table 1 - Groundwater Elevation Data
Table 2 - Monitoring Well Groundwater Sample Analytical Results

Appendix A - Groundwater Field Logs
Appendix B - Analytical Laboratory Report

cc: Cliff Ives, County of Sonoma Department of Health Services
Thomas and Helen Roberts
Mostafa K. Behzadpour
Susan Keeger, Artesia Mortgage Capital Coporation

0461\QMR Aug05



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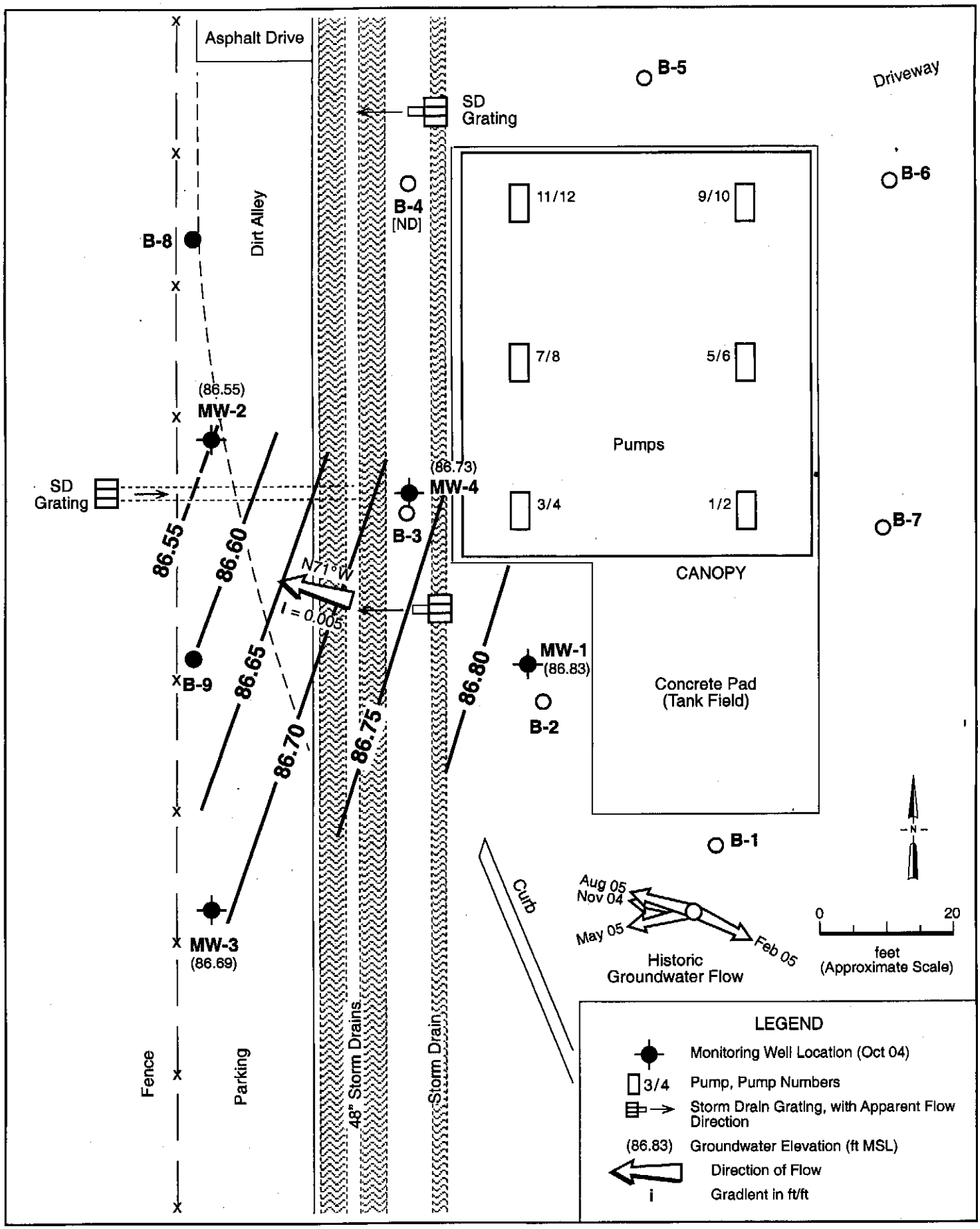
Site Location Map
5085 Redwood Drive
Rohnert Park, California

FIGURE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
0461,001.03		November 2003	



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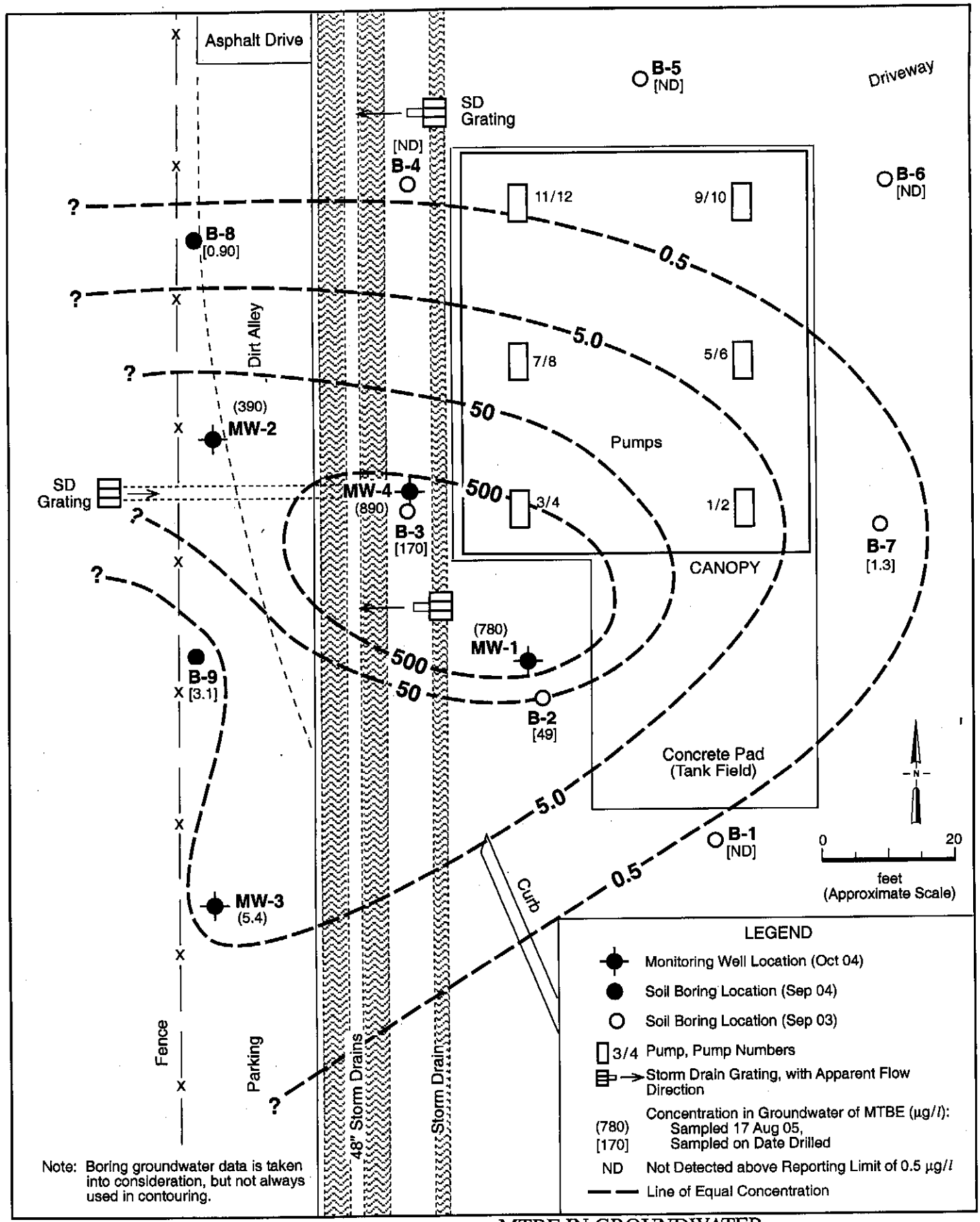
GROUNDWATER ELEVATION MAP, 17 August 2005

Tesoro Gas Station
5085 Redwood Drive
Rohnert Park, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED	SHEET NO.
0461, 001.03	EC&A, E.J. VandenBosch	July 2003	October 2005	1 of 1

(TRACE #385/RG/13Oct05)



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MTBE IN GROUNDWATER ISOCONCENTRATION CONTOUR MAP, 17 August 2005

Tesoro Gas Station
5085 Redwood Drive
Rohnert Park, California

FIGURE 3

JOB NUMBER	REVIEWED BY	DATE	REVISED	SHEET NO.
0461, 001.03	EC&A, E.J. VandenBosch	July 2003	October 2005	1 of 1

(TRACE #385/RG/13Oct05)

Table 1. Groundwater Elevation Data
5085 Redwood Drive, Rohnert Park, California

Well ID	Date	TOC Elevation feet	DTW feet	Groundwater Elevation feet
MW-1	11/09/04	93.11	5.88	87.23
MW-2		93.03	6.07	86.96
MW-3		93.23	6.22	87.01
MW-4		93.12	6.02	87.10
Gradient: N79°W, 0.005 ft/ft				
MW-1	02/16/05	93.11	4.30	88.81
MW-2		93.03	4.00	89.03
MW-3		93.23	4.32	88.91
MW-4		93.12	4.20	88.92
Gradient: S64°E, 0.004 ft/ft				
MW-1	05/03/05	93.11	4.69	88.42
MW-2		93.03	4.67	88.36
MW-3		93.23	4.88	88.35
MW-4		93.12	4.70	88.42
Gradient: S75°W, 0.016 ft/ft				
MW-1	**08/17/05**	**93.11**	**6.28**	**86.83**
MW-2		**93.03**	**6.48**	**86.55**
MW-3		**93.23**	**6.54**	**86.69**
MW-4		**93.12**	**6.39**	**86.73**
Gradient: N71°W, 0.005 ft/ft				

TOC: Top of casing elevation measured relative to mean sea level (msl)
DTW: Depth to water from TOC

Table 2. Monitoring Well Groundwater Sample Analytical Results
5085 Redwood Drive, Rohnert Park, California

Well ID	Sample Date	DTW (feet)	TPHg µg/l	TPHd µg/l	Benzene µg/l	Toluene µg/l	Ethyl-benzene µg/l	Xylenes µg/l	MTBE µg/l	TBA µg/l	Other Oxygenates and Lead Scavengers µg/l
MW-1	11/09/04	5.88	ND<50 [i]	ND<50 [i]	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1100	ND<500	ND<50 to <50,000
	02/16/05	4.30	64 [a]	ND<50	2.1	9.0	1.3	7.6	1200	ND<250	ND<25 to <25,000
	05/03/05	4.69	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1100	ND<500	ND<50 to <50,000
	08/17/05	**6.28**	**ND<50**	**ND<50**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**780**	**ND<500**	**ND<50 to <50,000**
MW-2	11/09/04	6.07	ND<50 [i]	ND<50 [i]	ND<0.5	ND<0.5	ND<0.5	ND<0.5	370	ND<50	ND<5.0 to <5000
	02/16/05	4.00	400 [a]	ND<50	19	82	10	66	230	64	ND<5.0 to <5000
	05/03/05	4.67	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	69	ND<10	ND<1.0 to <1000
	08/17/05	**6.48**	**ND<50**	**ND<50**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**390**	**ND<500**	**ND<50 to <50,000**
MW-3	11/09/04	6.22	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.1	ND<5.0	ND<0.5 to <500
	02/16/05	4.32	ND<50	ND<50	1.5	6.6	0.77	4.8	1.2	ND<5.0	ND<0.5 to <500
	05/03/05	4.88	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5.0	ND<0.5 to <500
	08/17/05	**6.54**	**ND<50**	**ND<50**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**5.4**	**ND<5.0**	**ND<0.5 to <500**
MW-4	11/09/04	6.02	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	760	ND<250	ND<25 to <25,000
	02/16/05	4.20	ND<50	ND<50	ND<0.5	2.0	ND<0.5	1.4	1200	530	ND<25 to <25,000
	05/03/05	4.70	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	700	ND<170	ND<17 to <17,000
	08/17/05	**6.39**	**ND<50**	**ND<50**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**890**	**ND<120**	**ND<12 to <12,000**

TPHg: Total petroleum hydrocarbons as gasoline
TPHd: Total petroleum hydrocarbons as diesel
MTBE: Methyl tert-butyl ether; analyzed by Analytical Method SW8260B
TBA: T-butyl alcohol
µg/l: Micrograms per liter

ND: Not detected above the respective reporting limit
DTW: Depth to groundwater below top of well casing
a: Unmodified or weekly modified gasoline is significant
i: Liquid sample that contains greater than ~1 vol. % sediment

Appendix A

Groundwater Field Logs

DAILY FIELD RECORD

Project and Task Number: 0461	Date: 8/17/05
Project Name: Tesoro Gas Station	Field Activity: Ground Water Monitr
Location: 5085 Red Wood Dr. Rohnert Pk	Weather: Sunny, Warm, Calm
Time of OVM Calibration:	

PERSONNEL

Name	Company	Time In	Time Out
R. Johnson	Edd Clark & Assoc		

DRUM ID	DESCRIPTION OF CONTENTS AND QUANTITY	LOCATION
7	H_2O	Behind CAR Wash

TIME	DESCRIPTION OF WORK PERFORMED	
11:00	Open all wells	ORDER 3, 2, 4, 1
11:30	allow for equilibration	MW-1 · 6.28
11:35	Take Pre DTW	MW-2 · 6.48
11:40	Calculations for purge vol	MW-3 · 6.54
11:55	Begin purging	MW-4 · 6.39
1:00	allow for recharge of wells	
2:00	Begin taking samples in order	Post DTW
3:06	Close & lock all wells, back to office	MW-1 · 5.00
		MW-2 · 5.00
		MW-3 · 6.00
		MW-4 · 5.00

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FIELD LOG

☒ GROUNDWATER	☐ SURFACE WATER	☐ DOMESTIC WATER	☐ IRRIGATION WATER	☐ WELL DEVELOPMENT

Project No: 0461	Field point name: MW-1
Global ID: T0609729469	Well depth from TOC: 20'
Project location: 5085 Redwood Dr	Well diameter: ☒ 2" ☐ 4 " ☐ 6" ☐ Other:
Date: 8/17/05	Product level from TOC: ND
Time: 11:00	Water level from TOC: 6.28
Recorded by: R. Johnson	Screened interval:
Purge time (duration):	Well elevation (TOC):

WEATHER

Wind: 0-5 mph	Precip. in last 5 days: N

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING

☒ 2" well = 0.17 gal/ft 13.72	☐ 6" well = 1.47 gal/ft	Gallons in 1 well volume: 2.3	
☐ 4" well = 0.66 gal/ft	☐ " well = gal/ft	Total gallons removed: 6.9	Well volumes removed: 3

CALIBRATION

Parameter	Time	Calibration	Before Sampling	Time	After Sampling
EC:					

FIELD MEASUREMENTS

Time	pH	EC µS (x1000)	Temp °F	Case Volumes/ Gallons	Appearance
1:26	8.13	1239	73.1	1 / 2.3	Low turb
1:22	8.09	1356	72.7	2 / 4.6	No odor
1:25	8.09	1296	71.8	3 / 6.9	No sheen
				/	

Notes:

Water level after purging below TOC:	80% of original water level below TOC: Y
Water level before sampling below TOC: 5.00	
Appearance of sample:	Time: 2:42

☐ Bailer:	Type:	GPM:	☒ Pump: ES-40	Type: Submersible	GPM: 1-2
☐ Dedicated:	Type:	GPM:	Decontamination method: Liquinox wash, double rinse		

Sample analysis:	☒ TPHg	☒ TPHd	☐ TPH	☒ BTEX	☒ oxygenates	☒ Lead scavengers	☐ VOCs	☐ Nitrates
EPA Method:								

Other:

LABORATORY: ☐ McCampbell Analytical ☐ Other:

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FIELD LOG

☒ GROUNDWATER	☐ SURFACE WATER	☐ DOMESTIC WATER	☐ IRRIGATION WATER	☐ WELL DEVELOPMENT

Project No: 0461	Field point name: MW-2
Global ID: T0608972946 9	Well depth from TOC: 20
Project location: 5085 Redwood Dr	Well diameter: ☒ 2" ☐ 4 " ☐ 6" ☐ Other:
Date: 8/17/05	Product level from TOC: ND
Time: 11:00	Water level from TOC: 6.48
Recorded by: R. Johnson	Screened interval:
Purge time (duration):	Well elevation (TOC):

WEATHER

Wind: 0-5 mph	Precip. in last 5 days: N

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING

☒ 2" well = 0.17 gal/ft 13.52	☐ 6" well = 1.47 gal/ft	Gallons in 1 well volume: 2.3	
☐ 4" well = 0.66 gal/ft	☐ " well = gal/ft	Total gallons removed: 7.2	Well volumes removed: 3

CALIBRATION

Parameter	Time	Calibration	Before Sampling	Time	After Sampling
EC:					

FIELD MEASUREMENTS

Time	pH	EC mS (x1000)	Temp °F	Case Volumes/ Gallons	Appearance
12:50	8.03	2024	63.4	1 / 2.3	low turb
12:52	8.05	2036	62.7	2 / 4.6	No odor
12:55	8.16	2040	62.9	3 / 7.2	No sheen
				/	

Notes:

Water level after purging below TOC: 80% of original water level below TOC: Y

Water level before sampling below TOC: 5.60

Appearance of sample: Time: 2:22

☐ Bailer:	Type:	GPM:	☒ Pump: ES-40	Type: Submersible	GPM 0.2
☐ Dedicated:	Type:	GPM:	Decontamination method: Liquinox wash, double rinse		

Sample analysis:	☒ TPHg	☒ TPHd	☐ TPH	☒ BTEX	☒ oxygenates	☒ Lead scavengers	☐ VOCs	☐ Nitrates
EPA Method:								

Other:

LABORATORY: ☐ McCampbell Analytical ☐ Other:

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FIELD LOG

☒ GROUNDWATER	☐ SURFACE WATER	☐ DOMESTIC WATER	☐ IRRIGATION WATER	☐ WELL DEVELOPMENT

Project No: 0461	Field point name: MW-3
Global ID: T0609729469	Well depth from TOC: 20
Project location: 5085 Redwood Dr	Well diameter: ☒ 2" ☐ 4 " ☐ 6" ☐ Other:
Date: 8/17/05	Product level from TOC: ND
Time: 11:00	Water level from TOC: 6.54
Recorded by: R. Johnson	Screened interval:
Purge time (duration):	Well elevation (TOC):

WEATHER

Wind: 0-5 mph	Precip. in last 5 days: N

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING

☒ 2" well = 0.17 gal/ft 13.46	☐ 6" well = 1.47 gal/ft	Gallons in 1 well volume: 2.3	
☐ 4" well = 0.66 gal/ft	☐ " well = gal/ft	Total gallons removed: 6.9	Well volumes removed: 3

CALIBRATION

Parameter	Time	Calibration	Before Sampling	Time	After Sampling
EC:					

FIELD MEASUREMENTS

Time	pH	EC µS (x1000)	Temp °F	Case Volumes/ Gallons	Appearance
11:55	7.90	2745	63.3	1 / 2.3	low turb
11:59	7.87	2880	63.1	2 / 4.6	no odor
12:00	7.82	2930	62.6	3 / 6.9	no sheen
				/	

Notes:

Water level after purging below TOC:	80% of original water level below TOC: Y
Water level before sampling below TOC: 6.00	
Appearance of sample:	Time: 2:10

☐ Bailer:	Type:	GPM:	☒ Pump: ES-40	Type: Submersible	GPM: 1-2
☐ Dedicated:	Type:	GPM:	Decontamination method: Liquinox wash, double rinse		

Sample analysis:	☒ TPHg	☒ TPHd	☐ TPH	☒ BTEX	☒ oxygenates	☒ Lead scavengers	☐ VOCs	☐ Nitrates
EPA Method:								

Other:

LABORATORY: ☐ McCampbell Analytical ☐ Other:

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FIELD LOG

☒ GROUNDWATER	☐ SURFACE WATER	☐ DOMESTIC WATER	☐ IRRIGATION WATER	☐ WELL DEVELOPMENT

Project No: 0461	Field point name: MW-4
Global ID: T0609729469	Well depth from TOC: 20'
Project location: 5085 Redwood Dr	Well diameter: ☒ 2" ☐ 4 " ☐ 6" ☐ Other:
Date: 8/17/05	Product level from TOC: ND
Time: 11:00	Water level from TOC: 6.39
Recorded by: R. Johnson	Screened interval:
Purge time (duration):	Well elevation (TOC):

WEATHER

Wind: 0-5 mph	Precip. in last 5 days:

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING

☒ 2" well = 0.17 gal/ft 13.61	☐ 6" well = 1.47 gal/ft	Gallons in 1 well volume: 2.3	
☐ 4" well = 0.66 gal/ft	☐ " well = gal/ft	Total gallons removed: 6.9	Well volumes removed: 3

CALIBRATION

Parameter	Time	Calibration	Before Sampling	Time	After Sampling
EC:					

FIELD MEASUREMENTS

Time	pH	EC (x1000)	Temp °F	Case Volumes/ Gallons	Appearance
1:03	8.11	1553	66.1	1 / 2.3	Low turb
1:06	8.09	1584	66.5	2 / 4.6	No Sheen
1:09	8.10	1596	65.9	3 / 6.9	No odor
				/	

Notes:

Water level after purging below TOC:	80% of original water level below TOC: 4
Water level before sampling below TOC: 5.00	
Appearance of sample:	Time: 2:30

☐ Bailer:	Type:	GPM:	☒ Pump: ES-40	Type: Submersible	GPM: 2
☐ Dedicated:	Type:	GPM:	Decontamination method: Liquinox wash, double rinse		

Sample analysis:	☒ TPHg	☒ TPHd	☐ TPH	☒ BTEX	☒ oxygenates	☒ Lead scavengers	☐ VOCs	☐ Nitrates
EPA Method:								

Other:

LABORATORY: ☐ McCampbell Analytical ☐ Other:

Appendix B

Laboratory Analytical Report

McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

Edd Clark & Associates, Inc. 320 Professional Center Ste. 215 Rohnert Park, CA 94928	Client Project ID: #0461; Tesoro	Date Sampled: 08/17/05
		Date Received: 08/18/05
	Client Contact: Ronen Johnson	Date Reported: 08/24/05
	Client P.O.:	Date Completed: 08/24/05

WorkOrder: 0508317

August 24, 2005

Dear Ronen:

Enclosed are:

1). the results of **4** analyzed samples from your **#0461; Tesoro project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

Edd Clark & Associates, Inc.	Client Project ID: #0461; Tesoro	Date Sampled: 08/17/05
320 Professional Center Ste. 215		Date Received: 08/18/05
Rohnert Park, CA 94928	Client Contact: Ronen Johnson	Date Extracted: 08/19/05-08/24/05
	Client P.O.:	Date Analyzed: 08/19/05-08/24/05

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0508317

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	ND	---	ND	ND	ND	ND	1	115
002A	MW-2	W	ND	---	ND	ND	ND	ND	1	113
003A	MW-3	W	ND	---	ND	ND	ND	ND	1	109
004A	MW-4	W	ND	---	ND	ND	ND	ND	1	116

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
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Edd Clark & Associates, Inc.	Client Project ID: #0461; Tesoro	Date Sampled: 08/17/05
320 Professional Center Ste. 215		Date Received: 08/18/05
Rohnert Park, CA 94928	Client Contact: Ronen Johnson	Date Extracted: 08/18/05
	Client P.O.:	Date Analyzed: 08/19/05

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel*

Extraction method: SW3510C Analytical methods: SW8015C Work Order: 0508317

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0508317-001C	MW-1	W	ND	1	96
0508317-002C	MW-2	W	ND	1	95
0508317-003C	MW-3	W	ND	1	99
0508317-004C	MW-4	W	ND	1	99

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.

DHS Certification No. 1644

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Edd Clark & Associates, Inc.	Client Project ID: #0461; Tesoro	Date Sampled: 08/17/05
		Date Received: 08/18/05
320 Professional Center Ste. 215	Client Contact: Ronen Johnson	Date Extracted: 08/20/05-08/23/05
Rohnert Park, CA 94928	Client P.O.:	Date Analyzed: 08/20/05-08/23/05

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0508317

Lab ID	0508317-001B	0508317-002B	0508317-003B	0508317-004B	Reporting Limit for DF =1	
Client ID	MW-1	MW-2	MW-3	MW-4		
Matrix	W	W	W	W		
DF	100	100	1	25	S	W
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND<50	ND<50	ND	ND<12	NA	0.5
t-Butyl alcohol (TBA)	ND<500	ND<500	ND	ND<120	NA	5.0
1,2-Dibromoethane (EDB)	ND<50	ND<50	ND	ND<12	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<50	ND<50	ND	ND<12	NA	0.5
Diisopropyl ether (DIPE)	ND<50	ND<50	ND	ND<12	NA	0.5
Ethanol	ND<5000	ND<5000	ND	ND<1200	NA	50
Ethyl tert-butyl ether (ETBE)	ND<50	ND<50	ND	ND<12	NA	0.5
Methanol	ND<50,000	ND<50,000	ND	ND<12,000	NA	500
Methyl-t-butyl ether (MTBE)	780	390	5.4	890	NA	0.5
Surrogate Recoveries (%)						
%SS1:	101	102	105	107		
Comments						

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water | QC Matrix: Water | WorkOrder: 0508317

EPA Method: SW8021B/8015Cm | **Extraction: SW5030B** | **BatchID: 17607** | **Spiked Sample ID: 0508286-004A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex)£	ND	60	94.3	89	5.84	100	102	1.60	70 - 130	70 - 130
MTBE	ND	10	92.5	90.8	1.84	91.4	98	7.06	70 - 130	70 - 130
Benzene	ND	10	91.7	91.5	0.281	104	110	5.03	70 - 130	70 - 130
Toluene	ND	10	90.9	91.3	0.491	103	108	4.28	70 - 130	70 - 130
Ethylbenzene	ND	10	93.2	93.3	0.120	107	111	4.00	70 - 130	70 - 130
Xylenes	ND	30	95	95	0	96	96.3	0.347	70 - 130	70 - 130
%SS:	107	10	98	101	2.92	107	112	4.73	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 17607 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0508317-001A	8/17/05 2:42 PM	8/20/05	8/20/05 2:24 PM	0508317-001A	8/17/05 2:42 PM	8/24/05	8/24/05 2:31 AM
0508317-002A	8/17/05 2:22 PM	8/19/05	8/19/05 9:01 PM	0508317-002A	8/17/05 2:22 PM	8/20/05	8/20/05 2:54 PM
0508317-003A	8/17/05 2:10 PM	8/20/05	8/20/05 3:24 PM	0508317-004A	8/17/05 2:30 PM	8/19/05	8/19/05 10:01 PM
0508317-004A	8/17/05 2:30 PM	8/20/05	8/20/05 4:55 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS Certification No. 1644

QA/QC Officer

McCampbell Analytical, Inc.

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QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0508317

EPA Method: SW8015C **Extraction: SW3510C** **BatchID: 17630** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(d)	N/A	1000	N/A	N/A	N/A	110	111	0.675	N/A	70 - 130
%SS:	N/A	2500	N/A	N/A	N/A	106	107	0.472	N/A	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 17630 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0508317-001C	8/17/05 2:42 PM	8/18/05	8/19/05 3:56 PM	0508317-002C	8/17/05 2:22 PM	8/18/05	8/19/05 5:04 PM
0508317-003C	8/17/05 2:10 PM	8/18/05	8/19/05 6:13 PM	0508317-004C	8/17/05 2:30 PM	8/18/05	8/19/05 7:21 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS Certification No. 1644

QA/QC Officer

McCampbell Analytical, Inc.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | WorkOrder: 0508317

EPA Method: SW8260B	Extraction: SW5030B	BatchID: 17629	Spiked Sample ID: 0508323-007B

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
tert-Amyl methyl ether (TAME)	ND	10	116	119	3.02	107	101	5.66	70 - 130	70 - 130
t-Butyl alcohol (TBA)	ND	50	99.4	106	6.90	96.4	89.6	7.34	70 - 130	70 - 130
1,2-Dibromoethane (EDB)	ND	10	103	102	1.15	97.9	92	6.15	70 - 130	70 - 130
1,2-Dichloroethane (1,2-DCA)	ND	10	109	110	0.762	112	108	4.31	70 - 130	70 - 130
Diisopropyl ether (DIPE)	ND	10	119	114	4.61	113	109	3.57	70 - 130	70 - 130
Ethanol	ND	500	103	108	4.36	108	95.7	12.3	70 - 130	70 - 130
Ethyl tert-butyl ether (ETBE)	ND	10	113	116	2.38	106	101	4.64	70 - 130	70 - 130
Methanol	ND	2500	100	101	1.29	102	102	0	70 - 130	70 - 130
Methyl-t-butyl ether (MTBE)	0.52	10	109	113	3.36	105	99.2	5.33	70 - 130	70 - 130
%SS1:	107	10	103	103	0	102	102	0	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 17629 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0508317-001B	8/17/05 2:42 PM	8/20/05	8/20/05 3:32 AM	0508317-002B	8/17/05 2:22 PM	8/20/05	8/20/05 4:15 AM
0508317-003B	8/17/05 2:10 PM	8/20/05	8/20/05 4:57 AM	0508317-004B	8/17/05 2:30 PM	8/23/05	8/23/05 6:57 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS Certification No. 1644

QA/QC Officer

Edd Clark & Associates, Inc.
Environmental Consultants

QCAR 0508317

Chain of Custody Report

P.O. Box 3039, Rohnert Park, CA 94927
Tel: (707) 792-9500 (800) 474-1448 Fax: (707) 792-9504

E-mail in EDF for Upload to Geotracker: Yes ☒ No ☐ Initials RJ

Samplers Signature: R. Johnson

EC&A job # 0461

Global I.D. # T0609729469

Facility Name & Location: Tesoro 5088 Redwood Blvd. Rohnert Pk, CA

Field Point Name	Date	Time	Sample ID (depth)	Sample Type	Media	# of Items	Analysis: TPHg BTEX	Analysis: TPHd	Analysis: 7 Oxys Pb Scav			Remarks
+ MW-1	8/17/05	2:42			W	3/2	x	x	x			
+ MW-2	↓	2:22			↓	3/2	x	x	x			
+ MW-3		2:10				3/2	x	x	x			
+ MW-4	↓	2:30			↓	3/2	x	x	x			

ICE/t° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT
DECHLORINATED IN LAB
PRESERVATION ✓ (VOAS | O&G | METALS | OTHER)
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
	8/18/05	1030			8/18/05	545	
Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:

McCampbell Analytical, Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0508317 **ClientID: ECAR** **EDF: NO**

Report to:
Ronen Johnson
Edd Clark & Associates, Inc.
320 Professional Center Ste. 215
Rohnert Park, CA 94928
TEL: (707) 792-9500
FAX: (707) 792-9504
ProjectNo: #0461; Tesoro
PO:

Bill to:
Accounts Payable
Edd Clark & Associates, Inc.
320 Professional Center Ste.215
Rohnert Park, CA 94928

Requested TAT: 5 days
Date Received: 08/18/2005
Date Printed: 08/18/2005

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0508317-001	MW-1	Water	8/17/05 2:42:00 PM	☐	B	A	A	C											
0508317-002	MW-2	Water	8/17/05 2:22:00 PM	☐	B	A		C											
0508317-003	MW-3	Water	8/17/05 2:10:00 PM	☐	B	A		C											
0508317-004	MW-4	Water	8/17/05 2:30:00 PM	☐	B	A		C											

Test Legend:

1	9-OXYS_W	2	G-MBTEX_W	3	PREDF REPORT	4	TPH(D)_W	5	
6		7		8		9		10	
11		12		13		14		15	

Prepared by: Melissa Valles

Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.